

# ASHRAE JOURNAL

## EDITORIAL INDEX FOR 1970 VOLUME 12

Names of authors appear in bold;  
subject classifications in bold capitals

### A

**Achenbach, P.R.**

Looking Toward Environmental Quality . .	4—	71
Research on Energy Use . . . . .	10—	60

### AIR CONDITIONING

Air Handling Systems for Control of Smoke Movement, G.T. Tamura, J.H. McGuire and A.G. Wilson . . . . .	11—	37
Air Management in an Enclosed City, R.E. Larson . . . . .	9—	51
Analysis of Variable Speed Pumping for Hydronic Systems, An, H.P. Becker . .	5—	71
Army Tests Its ECU's (Environmental Control Units), J.L. Wilson . . . . .	6—	62
Building Systems—Past, Present and Fu- ture, C. Arnold . . . . .	10—	35
Constant Temperature and Humidity Room, A, W.N. Findley and R.M. Reed .	4—	44
Cooling Tower Application, F. Kohloss . .	8—	49
Design Considerations and Operating Characteristics of Variable Volume Systems, R.A. Urban . . . . .	2—	77
Design Engineers: Locate Equipment for Maintenance and Service, H.A. Ferran . . . . .	7—	62
District Chilled Water: An Idea Whose Time Has Come, W.J. Bailey . . . . .	2—	45
Energy Systems Review, H.H. Phipps . .	7—	49
Environmental Engineering at the NASA Manned Spacecraft Center, D. Hous- ton . . . . .	3—	27
Environmental Systems for a Precision Metrology Laboratory, R.W. Pond . .	1—	71
Future of Multi-Room Air Conditioning, The, H.L. Laube . . . . .	3—	56
Gas Engines—On-Site Prime Movers, The, M. Barrangon . . . . .	2—	50
Heating and Air Conditioning for Mobile Homes, M.M. Martier . . . . .	5—	57
Human Habitat—1994, The, W.L. McGrath . . . . .	3—	50
Industrialized Farming Opens a New Realm for the Environmental Engi- neer, H.E. Oyster . . . . .	5—	53
Input-Output Structure of the Air- Conditioning Industry, The, L.S. Gun- logson . . . . .	10—	51
Re-Use of Interior Air, The, P. Kalika, J.K. Holcombe and W.A. Cote . . . . .	11—	44
Room Air Distribution with a Variable Vol- ume System, H.E. Straub . . . . .	4—	52
Teacher Attitudes and Opinions on Air Conditioning in Schools, R.A. Fabri- zio and R.D. Pepler . . . . .	9—	58

Total Comfort Systems for Factories, R.R. Miller . . . . .	4—	43
Total Comfort Systems for Hospitals and Nursing Homes, J. Rudberg . . . . .	4—	39
Total Comfort Systems for Schools and Colleges, J.B. Thomas . . . . .	4—	41
Total Energy Concepts for Refrigeration and Air-Conditioning Engineers, W.S. Fleming . . . . .	11—	49
Part I . . . . .	12—	32
Part II . . . . .		
Ventilation, Filtration and Exhaust Tech- niques Applied to Printing Plant Opera- tions, T.P. Marsailles . . . . .	12—	27
What's Behind the U and L?, W.H. Farrell .	7—	46
Air Handling Systems for Control of Smoke Movement, G.T. Tamura, J.H. McGuire and A.G. Wilson . . . . .	11—	37
Air Management in an Enclosed City, R.E. Larson . . . . .	9—	51

### AIR POLLUTION, see POLLUTION

Analysis of Variable Speed Pumping for Hy- dronic Systems, An, H.P. Becker . . . . .	5—	71
Army Tests Its ECU's (Environmental Control Units), J.L. Wilson . . . . .	6—	62
<b>Arnold, C.</b> , Building Systems—Past, Present, and Future . . . . .	10—	35
ASHRAE/ANSI Cooperation in the Public In- terest, D. Hogan . . . . .	9—	39
ASHRAE/ARI Cooperation Includes Writing of Standards, F.J. Reed . . . . .	9—	42
ASHRAE, ARI Expositions Consolidate . . . .	8—	31
ASHRAE Financial Statements 1969-1970 . .	12—	66
ASHRAE Intersociety Representatives . . . .	9—	48
ASHRAE Membership—A Privilege, W.G. Hole .	3—	49
ASHRAE 1970 Annual Meeting, Kansas City, Mo., June 28-July 1, 1970 . . . . .		
ASHRAE 1970 Annual Meeting in Review Program and Abstracts . . . . .	8—	39
'Refrigeration's Role in World Food Sup- ply' Keynotes 1970 Annual Meeting . . . .	6—	33
ASHRAE 1970 Semiannual Meeting, San Fran- cisco, Calif., January 19-22, 1970 . . . .		
'A Look into the Future' Will Keynote 1970 Semiannual Meeting in San Francisco . . . . .	1—	31
Past is Prologue...Theme for San Fran- cisco Meeting, The . . . . .	3—	39
Program and Abstracts . . . . .	1—	32
ASHRAE Officers, Directors, Committeemen, Staff, see Society Communications . . . . .		
ASHRAE Publishes History Bulletin . . . . .	9—	69
ASHRAE Region & Chapter Officers . . . . .	12—	68
ASHRAE Standard Project Committees . . . .	9—	46
ASHRAE's Research & Technical Committee: Its Structure and Objectives, J.R. Schreiner . . . . .	8—	67
ASHRAE Technical Committees & Task Groups 1970-71 . . . . .	11—	69
Assessment of Standards Activity—1969, N.A. La Courte . . . . .	1—	81

### B

<b>Bailey, W.J.</b> , District Chilled Water: An Idea Whose Time Has Come . . . . .	2—	45
<b>Barrangon, M.</b> , Gas Engines—On-Site Prime Movers, The . . . . .	2—	50
<b>Becker, H.P.</b> , Analysis of Variable Speed Pumping for Hydronic Systems . . . . .	5—	71

	No.	Page
Birmingham Chapter Holds Seminar on Current Trends in Refrigeration .....	6—	76
<b>Boggs, A.T., III</b>		
Executive Director's Report .....	4—	61
	5—	81
Report by the Executive Director .....	9—	71
<b>Bridgers, F.H.</b>		
75th Anniversary Celebration Has Profound Impact on Society .....	1—	79
'To Strive for Excellence' .....	7—	69
<b>Buchanan, R.S.,</b> Concern for 'Public Welfare' Emphasized in ASHRAE's 36 Research Projects for 1970-71 .....	10—	63
Building Systems—Past, Present and Future, C. Arnold .....	10—	35

## C

Canadians Give and Take in ASHRAE Research Programs, W.G. Colborne .....	3—	65
Cause and Effect: ASHRAE Air Cleaner Standard 52-68 Benefits Both Industry and the Consumer, R.F. Logsdon .....	9—	44
Central Refrigeration Systems, W.I. Grant .....	11—	56
<b>Chaddock, J.B.</b>		
Free Convection Heat Transfer from Vertical Rectangular Fin Arrays .....	8—	53
Goals of the ASHRAE Research Program, 1970-71 .....	7—	71
<b>Chambers, A.B.,</b> Controlling Thermal Comfort in the EVA Space Suit .....	3—	33
Chemistry and Contaminants Technical Committees Reorganized, J.E. Hoffman .....	1—	80
<b>Christie, P.A.,</b> Compromise of Professionalism, A. ....	4—	59
<b>Colborne, W.G.,</b> Canadians Give and Take in ASHRAE Research Program .....	3—	65

### COMFORT, see PSYCHROMETICS

Comparative Analysis of Packaged and Central Station Refrigeration, L.R. St. Onge .....	10—	47
Compromise of Professionalism, A. P.A. Christie .....	4—	59

## COMPUTERS

Consulting Engineer Evaluates the Small Computer, A. F.A. Sando .....	6—	56
Industrialized Farming Opens a New Realm for the Environmental Engineer, H.E. Oyster .....	5—	53
Slide Rule With a Memory, E.M. Hilliard .	1—	57
Total Comfort Systems for Schools and Colleges, J.B. Thomas .....	4—	41
Concern for 'Public Welfare' Emphasized in ASHRAE's 36 Research Projects for 1970-71, R.S. Buchanan .....	10—	63
Constant Temperature and Humidity Room, A. W.N. Findley and R.M. Reed .....	4—	44

## CONSTRUCTION

Building Systems—Past, Present and Future, C. Arnold .....	10—	35
Compromise of Professionalism, A. P.A. Christie .....	4—	59
Electric Heating's Adaptability to Modular Construction, P.C. Greiner and C.P. Robart, Jr. ....	5—	50
Need for Industrialized Construction, The, A.A. Perry .....	5—	41
Product Trends in Modular Housing, O. Klima .....	5—	44
Consulting Engineer Evaluates the Small		

Computer, A. F.A. Sando .....	6—	56
Contributors to the ASHRAE Research Program .....	10—	74
Controlling Thermal Comfort in the EVA Space Suit, A.B. Chambers .....	3—	33
Cooling Tower Application, F.H. Kohloss .....	8—	49
Cooperation Between ARI and ASHRAE Benefits Industry, L.N. Hunter .....	4—	37
<b>Cote, W.A.,</b> see P. Kalika		

## CRYOGENICS

Environmental Engineering at the NASA Manned Spacecraft Center, D. Houston .....	3—	27
Valve Industry—Its History and Its Future, The, R.W. Sullivan .....	7—	37

## D

Design Considerations and Operating Characteristics of Variable Volume Systems, R.A. Urban .....	2—	77
Design Engineers: Locate Equipment for Maintenance and Service, H.A. Ferran ..	7—	62
<b>Dillenbeck, W.H.,</b> Industry Standard Revised for Centrifugal Water Chilling Packages .	5—	67
Directory of Commercial Gas Equipment .....	2—	63
District Chilled Water: An Idea Whose Time Has Come, W.J. Bailey .....	2—	45
<b>Dube, J.E.,</b> What is the Future for ASHRAE Publications? .....	4—	60

## E

Economy Begins to Favor Heat Recovery, D. Watts .....	2—	54
Editor's Comment, J.H. Cansdale ...	1—	29
	2—	35
	3—	25
	4—	35
	5—	33
	6—	31
	7—	35
	8—	29
	9—	35
	10—	33
	11—	35
	12—	25

## EDUCATION

Education & Manpower in Canada, W.G. Woodcock .....	6—	75
Grass Roots Education, J.B. Olivieri ....	3—	64
Quest for Knowledge...An Engineering Student's Personal Viewpoint, The, B.A. Nagengast .....	5—	80
Education & Manpower in Canada, W.G. Woodcock .....	6—	75

## ELECTRIC

Electric Heating's Adaptability to Modular Construction, P.C. Greiner and C.P. Robart, Jr. ....	5—	50
Electric Incinerators—Newcomer to the Total Electric Family, L. Wallace ...	5—	48
Electric Snow Melting: The Effects of Insulation and Off-Peak Storage, J.B.C. Thomas .....	10—	42
Energy Systems Review, H.H. Phipps ...	7—	49
Experimental Investigation of the Wall Streking Problem in Electric Baseboard Heaters, An, G.K. Gupta ....	12—	48
Heating and Air Conditioning for Mobile Homes, M.M. Martier .....	5—	57
Industrialized Farming Opens a New Realm for the Environmental Engineer, H.E. Oyster .....	5—	53
Total Energy Concepts for Refrigeration and Air-Conditioning Engineers, W.S. Fleming		
Part I .....	11—	49
Part II .....	12—	32

	No.	Page
Why Study Energy Consumption? H.T. Gilkey .....	2—	88
Electric Heating's Adaptability to Modular Construction, P.C. Greiner and C.P. Robert, Jr. ....	5—	50
Electric Incinerators—Newcomer to the Total Electric Family, L. Wallace .....	5—	48
Electric Snow Melting: The Effects of Insulation and Off-Peak Storage, J.B.C. Thomas .....	10—	42
Ellmann, W., GE Award Program Recognizes Achievements of Dealers-Contractors ..	3—	62
Energy Systems Review, H.H. Phipps .....	7—	49
Engineering Education for Students...Begin Early, C.S. Perkins .....	4—	70
Engineering Ethics and Consumerism, L.A. Staebler .....	9—	70
<b>ENGINEERING PROFESSION</b>		
Compromise of Professionalism, A. P.A. Christie .....	4—	59
Consulting Engineer Evaluates the Small Computer, A. F.A. Sando .....	6—	56
Design Engineers: Locate Equipment for Maintenance and Service, H.A. Ferran .....	7—	62
Future of Multi-Room Air Conditioning, The, H.L. Laube .....	3—	56
GE Award Program Recognizes Achievements of Dealers-Contractors, W. Ellmann .....	3—	62
Human Habitat—1994, The, W.L. McGrath .....	3—	50
Improved Communication Means Better Labor/Management Relations, A.A. Imberman .....	1—	67
Quest for Knowledge...An Engineering Student's Personal Viewpoint, The, B.A. Nagengast .....	5—	80
Slide Rule With a Memory, E.M. Hilliard ..	1—	57
Society of Environmental Engineers, W.L. Holladay .....	3—	63
<b>ENVIRONMENTAL CONTROL</b>		
Air Management in an Enclosed City, R.E. Larson .....	9—	51
Army Tests Its ECU's (Environmental Control Units), J.L. Wilson .....	6—	62
Constant Temperature and Humidity Room, A. W.N. Findley and R.M. Reed ..	4—	44
Environmental Engineering at the NASA Manned Spacecraft Center, D. Houston .....	3—	27
Industrialized Farming Opens a New Realm for the Environmental Engineer, H.E. Oyster .....	5—	53
Valve Industry—Its History and Its Future, The, R.W. Sullivan .....	7—	37
Environmental Engineering at the NASA Manned Spacecraft Center, D. Houston .....	3—	27
Environmental Systems for a Precision Metrology Laboratory, R.W. Pond .....	1—	71
<b>EQUIPMENT</b>		
Analysis of Variable Speed Pumping for Hydronic Systems, An, H.P. Becker ..	5—	71
ASHRAE/NSI Cooperation in the Public Interest, D. Hogan .....	9—	39
Cause and Effect: ASHRAE Air Cleaner Standard 52-68 Benefits Both Industry and the Consumer, R.F. Logsdon .....	9—	44
Central Refrigeration Systems, W.I. Grant ..	11—	56

	No.	Page
Cooling Tower Application, F. Kohloss ..	8—	49
Comparative Analysis of Packaged and Central Station Refrigeration, L.R. St. Onge .....	10—	47
Design Engineers: Locate Equipment for Maintenance and Service, H.A. Ferran .....	7—	62
Experimental Investigation of the Wall Streaking Problem in Electric Baseboard Heaters, An, G.K. Gupta .....	12—	48
Industry Standard Revised for Centrifugal Water Chilling Packages, W.H. Dillenbeck .....	5—	67
Input-Output Structure of the Air-Conditioning Industry, The, L.S. Gunlogson .....	10—	51
Owner Experiences—Roof-Top and Central System Installations, G.E. Meyer ..	12—	54
Questions and Answers: Sizing of Service Water Heating Equipment .....	7—	55
Room Air Distribution with a Variable Volume System, H.E. Straub .....	4—	52
Total Energy Concepts for Refrigeration and Air-Conditioning Engineers, W.S. Fleming .....		
Part I .....	11—	49
Part II .....	12—	32
Executive Committee 'Think-Tanks' Gear for the Future, S.F. Gilman .....	11—	65
Executive Director's Report, A.T. Boggs III ..	4—	61
	5—	81
Experimental Investigation of the Wall Streaking Problem in Electric Baseboard Heaters, An, G.K. Gupta .....	12—	48
<b>F</b>		
Fabrizio, R.A. and R.D. Pepler, Teacher Attitudes and Opinions on Air Conditioning in Schools .....	9—	58
Farrell, W.H., What's Behind the U and L? ....	7—	46
Ferran, H.A., Design Engineers: Locate Equipment for Maintenance and Service .....	7—	62
Environmental Systems for a Precision Metrology Laboratory, R.W. Pond ..	1—	71
History of the Changing Concepts in Ventilation Requirements, A.K. Klauss, R.H. Tull, L.M. Roots and J.R. Pfafflin .....	6—	51
Pollution-Controlled Gas Incineration: A Solution to the Growing Problem of Solid Waste Disposal, P.G. LaRue ..	2—	58
Re-Use of Interior Air, The, P. Kalika, J.K. Holcombe, and W.A. Cote .....	11—	44
Findley, W.N. and R.M. Reed, Constant Temperature and Humidity Room, A .....	4—	44
Fleming, W.S., Total Energy Concepts for Refrigeration and Air-Conditioning Engineers .....		
Part I .....	11—	49
Part II .....	12—	32
<b>FOOD PRESERVATION</b>		
Central Refrigeration Systems, W.I. Grant ..	11—	56
Comparative Analysis of Packaged and Central Station Refrigeration, L.R. St. Onge .....	10—	47
Humidity and Weight Loss in Cold Stored Pecans, E.K. Heaton and J.C. Woodroof .....	4—	49

	No.	Page		No.	Page
New Thoughts on an Old Subject—Cold Storage Insulation, R.M. Seward . . .	7—	42	Hydronic Systems, An, H.P. Becker .	5—	71
Owner Experiences—Roof-Top and Central System Installations, G.E. Meyer . . . . .	12—	54	Army Tests Its ECU's (Environmental Control Units), J.L. Wilson . . . . .	6—	62
Public Refrigerated Warehouses, R. Powell . . . . .	8—	61	Electric Heating's Adaptability to Modular Construction, P.C. Greiner and C.P. Robart, Jr. . . . .	5—	50
Relation of Humidity to Economic Loss during Storage of Fishery Products, J.A. Peters . . . . .	2—	73	Electric Snow Melting: The Effects of Insulation and Off-Peak Storage, J.B.C. Thomas . . . . .	10—	42
Role of Refrigeration in Our World Food Supply, The, M. Jul . . . . .	8—	32	Environmental Engineering at the NASA Manned Spacecraft Center, D. Houston . . . . .	3—	27
28 to 32 F Temperatures Ideal for Preservation, Storage and Transportation of Poultry, W.J. Stadelman . . . . .	3—	61	Environmental Systems for a Precision Metrology Laboratory, R.W. Pond . .	1—	71
Free Convection Heat Transfer From Vertical Rectangular Fin Arrays, J.B. Chaddock . .	8—	53	Experimental Investigation of the Wall Streaking Problem in Electric Baseboard Heaters, An, G.K. Gupta . . . .	12—	48
<b>FUELS</b>			Gas Engines—On-Site Prime Movers, The, M. Barrangon . . . . .	2—	50
District Chilled Water: An Idea Whose Time Has Come, W.J. Bailey . . . . .	2—	45	Heating and Air Conditioning for Mobile Homes, M.M. Martier . . . . .	5—	57
Economy Begins to Favor Heat Recovery, D. Watts . . . . .	2—	54	History of the Changing Concepts in Ventilation Requirements, A.K. Klauss, R.H. Tull, L.M. Roots and J.R. Pfafflin	6—	51
Future of Multi-Room Air Conditioning, The, H.L. Laube . . . . .	3—	56	Human Habitat—1994, The, W.L. McGrath	3—	50
Gas Engines—On-Site Prime Movers, The, M. Barrangon . . . . .	2—	50	Industrialized Farming Opens a New Realm for the Environmental Engineer, H.E. Oyster . . . . .	5—	53
Human Habitat—1994, The, W.L. McGrath	3—	50	Total Energy Concepts for Refrigeration and Air-Conditioning Engineers, W.S. Fleming		
Pollution-Controlled Gas Incineration: A Solution to the Growing Problem of Solid Waste Disposal, P.G. LaRue . . .	2—	58	Part I . . . . .	11—	49
Total Energy Concepts for Refrigeration and Air-Conditioning Engineers, W.S. Fleming			Part II . . . . .	12—	32
Part I . . . . .	11—	49	Heating and Air Conditioning for Mobile Homes, M.M. Martier . . . . .	5—	57
Part II . . . . .	12—	32			
Valve Industry—Its History and Its Future, The, R.W. Sullivan . . . . .	7—	37	<b>HEAT RECOVERY, see TOTAL ENERGY</b>		
Why Study Energy Consumption? H.T. Gilkey . . . . .	2—	88	<b>HEAT TRANSFER</b>		
Future of Multi-Room Air Conditioning, The, H.L. Laube . . . . .	3—	56	Controlling Thermal Comfort in the EVA Space Suit, A.B. Chambers . . . . .	3—	33
<b>G</b>			Economy Begins to Favor Heat Recovery, D. Watts . . . . .	2—	54
Gas Engines—On-Site Prime Movers, The, M. Barrangon . . . . .	2—	50	Free Convection Heat Transfer from Vertical Rectangular Fin Arrays, J.B. Chaddock . . . . .	8—	53
Gas Equipment for Total Environmental Control—Special Section . . . . .	2—	43	Heat Transfer to Boiling Fluorocarbon Refrigerants, B. Slipcevic . . . . .	6—	65
GE Award Program Recognizes Achievements of Dealers-Contractors, W. Ellmann . . . .	3—	62	Industry Standard Revised for Centrifugal Water Chilling Packages, W.H. Dillenbeck . . . . .	5—	67
Gilkey, H.T., Why Study Energy Consumption?	2—	88	New Thoughts on an Old Subject—Cold Storage Insulation, R.M. Seward . . .	7—	42
Gilman, S.F., Executive Committee 'Think-Tanks' Gear for the Future . . . . .	11—	65	Heat Transfer to Boiling Fluorocarbon Refrigerants, B. Slipcevic . . . . .	6—	65
Goals of the ASHRAE Research Program, 1970-71 J.B. Chaddock . . . . .	7—	71	Heaton, E.K. and J.G. Woodroof, Humidity and Weight Loss in Cold Stored Pecans . . . .	4—	49
Grant, W.I., Central Refrigeration Systems . .	11—	56	Hilliard, E.M., Slide Rule with a Memory . . . .	1—	57
Grass Roots Education, J.B. Olivieri . . . . .	3—	64	Historic Philadelphia Will Host ASHRAE 1971 Semiannual Meeting, January 24-28 . . . .	10—	62
Greiner, P.C., and C.P. Robart, Jr., Electric Heating's Adaptability to Modular Construction . . . . .	5—	50			
Gunlogson, L.S., The Input-Output Structure of the Air-Conditioning Industry . . . . .	10—	51	<b>HISTORY</b>		
Gupta, G.K., An Experimental Investigation of the Wall Streaking Problem in Electric Baseboard Heaters . . . . .	12—	48	Future of Multi-Room Air Conditioning, The, H.L. Laube . . . . .	3—	56
<b>H</b>			Human Habitat—1994, The, W.L. McGrath	3—	50
<b>HEATING</b>			Valve Industry—Its History and Its Future, The, R.W. Sullivan . . . . .	7—	37
Air Management in an Enclosed City, R.E. Larson . . . . .	9—	51	History of the Changing Concepts in Ventilation Requirements, A.K. Klauss, R.H. Tull, L.M. Roots and J.R. Pfafflin	6—	51
Analysis of Variable Speed Pumping for			Hoffman, J.E., Chemistry and Contaminants		

	No.	Page
Technical Committees Reorganized . . . .	1—	80
Hogan, D., ASHRAE/ANSI Cooperation in the Public Interest . . . . .	9—	39
Holcombe, J.K., see P. Kalika		
Hole, W.G.		
ASHRAE Membership—A Privilege . . . .	3—	49
Year of Discovery, A . . . . .	8—	38
Holladay, W.L., Society of Environmental Engineers . . . . .	3—	63
Houston, D., Environmental Engineering at the NASA Manned Spacecraft Center . . . .	3—	27
Human Habitat—1994, The, W.L. McGrath . .	3—	50

## HUMIDITY

Air Management in an Enclosed City, R.E. Larson . . . . .	9—	51
Constant Temperature and Humidity Room, A, W.N. Findley and R.M. Reed . .	4—	44
Humidity and Weight Loss in Cold Stored Pecans, E.K. Heaton and J.G. Wood— . . . . .	4—	49
Relation of Humidity to Economic Loss during Storage of Fishery Products, J.A. Peters . . . . .	2—	73
Total Comfort Systems for Hospitals and Nursing Homes, J. Rudberg . . . . .	4—	39
Ventilation, Filtration and Exhaust Techniques Applied to Printing Plant Operations, T.P. Marsailles . . . . .	12—	27
Humidity and Weight Loss in Cold Stored Pecans, E.K. Heaton and J.G. Woodroof . .	4—	49
Hunter, L.N., Cooperation Between ARI and ASHRAE Benefits Industry . . . . .	4—	37

## I

Imberman, A.A., Improved Communication Means Better Labor/Management Relations . . . . .	1—	67
Improved Communications Means Better Labor/Management Relations, A.A. Imberman . . . . .	1—	67
Industrialized Building—New Trends in Total Comfort Systems . . . . .	4—	37

## INDUSTRIALIZED CONSTRUCTION

Building Systems—Past, Present and Future, C. Arnold . . . . .	10—	35
Electric Heating's Adaptability to Modular Construction, P.C. Greiner and C.P. Robart, Jr. . . . .	5—	50
Heating and Air Conditioning for Mobile Homes, M.M. Martier . . . . .	5—	57
Industrialized Farming Opens a New Realm for the Environmental Engineer H.E. Oyster . . . . .	5—	53
Need for Industrialized Construction, The, A.A. Perry . . . . .	5—	41
Product Trends in Modular Housing, O. Klima . . . . .	5—	44
Total Comfort Systems for Schools and Colleges, J.B. Thomas . . . . .	4—	41
Industrialized Farming Opens a New Realm for the Environmental Engineer, H.E. Oyster . . . . .	5—	53
Industrialized Modular Construction in the Electric Industry—Special Section . . . .	5—	37
Industry Standard Revised for Centrifugal Water Chilling Packages, W.H. Dillenbeck . .	5—	67
Input-Output Structure of the Air-Conditioning Industry, The, L.S. Gunlogson . . . . .	10—	51
Installation by Helicopter . . . . .	9—	50

## INSULATION

Constant Temperature and Humidity Room, A, W.N. Findley and R.M. Reed . .	4—	44
Electric Heating's Adaptability to Modular Construction, P.C. Greiner and C.P. Robart, Jr. . . . .	5—	50
Electric Snow Melting: The Effects of Insulation and Off-Peak Storage, J.B.C. Thomas . . . . .	10—	42
Environmental Systems for a Precision Metrology Laboratory, R.W. Pond . .	1—	71
New Thoughts on an Old Subject—Cold Storage Insulation, R.M. Seward . . .	7—	42
Relation of Humidity to Economic Loss during Storage of Fishery Products, J.A. Peters . . . . .	2—	73
It's Your Program!, P.E. McNall, Jr. . . . .	9—	67

## J

Jul, M., Role of Refrigeration in Our World Food Supply, The . . . . .	8—	32
--	----	----

## K

Kalika, P., J.K. Holcombe, W.A. Cote, The Re-Use of Interior Air . . . . .	11—	44
Klauss, A.K., R.H. Tull, L.M. Roots and J.R. Pfafflin, History of the Changing Concepts in Ventilation Requirements . . .	6—	51
Klima, O., Product Trends in Modular Housing . . . . .	5—	44
Kohloss, F.H., Cooling Tower Application . . .	8—	49
Kramer, D.E., Standards for the Seventies—Inward or Outward Bound? . . . . .	9—	37

## L

La Courte, N.A.		
Assessment of Standards Activity—1969 . .	1—	81
Making of a Standard, The . . . . .	9—	38
New and Revised ASHRAE Standards . . .	7—	70
Status of ASHRAE Standards . . . . .	12—	63
Larson, R.E., Air Management in an Enclosed City . . . . .	9—	51
LaRue, P.G., Pollution-Controlled Gas Incineration: A Solution to the Growing Problems of Solid Waste Disposal . . . . .	2—	58
Laube, H.L., Future of Multi-Room Air Conditioning, The . . . . .	3—	56
Logsdon, R.F.		
Cause and Effect: ASHRAE Air Cleaner Standard 52-68 Benefits Both Industry and the Consumer . . . . .	9—	44
R&T Chairman Reports on Stewardship, 1969-70 . . . . .	6—	74
Looking Toward Environmental Quality, P.R. Achenbach . . . . .	4—	71

## M

### MAINTENANCE

Comparative Analysis of Packaged and Central Station Refrigeration, L.R. St. Onge . . . . .	10—	47
Cooling Tower Application, F.H. Kohloss . .	8—	49
Design Engineers: Locate Equipment for Maintenance and Service, H.A. Ferran . .	7—	62
Energy Systems Review, H.H. Phipps . . .	7—	49
Industry Standard Revised for Centrifugal Water Chilling Packages, W.H. Dillenbeck . . . . .	5—	67
Making of a Standard, The, N.A. La Courte . .	9—	38
Marsailles, T.P., Ventilation, Filtration and Exhaust Techniques Applied to Printing . .		

	No.	Page
Plant Operations .....	12—	27
Martier, M.M., Heating and Air Conditioning for Mobile Homes .....	5—	57
McGrath, W.L., Human Habitat—1994, The ..	3—	50
McGuire, J.H., see G.T. Tamura		
McNall, P.E., Jr., It's Your Program! .....	9—	67
Meyer, G.E., Owner Experiences—Roof-Top and Central System Installations .....	12—	54
Miller, R.R., Total Comfort Systems for Factories .....	4—	43
'Mr. X Gave an Interesting Talk' .....	9—	77

#### MOBILE HOMES, see INDUSTRIALIZED CONSTRUCTION

#### MODULAR, see INDUSTRIALIZED CONSTRUCTION

### N

Nagengast, B.A., Quest for Knowledge ... An Engineering Student's Personal Viewpoint, The .....	5—	80
Need for Industrialized Construction, The, A.A. Perry .....	5—	41
New and Revised ASHRAE Standards, N.A. La Courte .....	7—	70
New Thoughts on an Old Subject—Cold Storage Insulation, R.M. Seward .....	7—	42
1970 Systems Volume of ASHRAE GUIDE AND DATA BOOK Available in May .....	4—	72
Nominations for ASHRAE Officers, Members of the Board of Directors .....	4—	62
Nussbaum, O.J., Research Project Initiated on Two-Phase Refrigerant Flow .....	5—	79

### O

#### ODOR, see FILTRATION, POLLUTION and VENTILATION

Olivieri, J.B., Grass Roots Education .....	3—	64
Owner Experiences—Roof-Top and Central System Installations, G.E. Meyer .....	12—	54
Oyster, H.E., Industrialized Farming Opens a New Realm for the Environmental Engineer .....	5—	53

### P

Participate in National Meeting Programs, T.J. White .....	2—	90
Pepler, R.D., see R.A. Fabrizio		
Perkins, C.S., Engineering Education for Students ... Begin Early .....	4—	70
Perry, A.A., Need for Industrialized Construction, The .....	5—	41
Peters, J.A., Relation of Humidity to Economic Loss during Storage of Fishery Product .....	2—	73
Phipps, H.H., Energy Sytems Review .....	7—	49
Pfafflin, J.R., see A.K. Klauss		

#### POLLUTION

Air Management in an Enclosed City, R.E. Larson .....	9—	51
Cause and Effect: ASHRAE Air Cleaner Standard 52-68 Benefits Both Industry and the Consumer, R.F. Logsdon .....	9—	44
Electric Incinerators—Newcomer to the Total Electric Family, L. Wallace ...	5—	48
Energy Systems Review, H.H. Phipps ...	7—	49
Human Habitat—1994, The, W.L. McGrath	3—	50
Pollution-Controlled Gas Incineration: A		

#### No. Page

Solution to the Growing Problem of Solid Waste Disposal, P.G. LaRue ...	2—	58
Re-Use of Interior Air, The, P. Kalika, J.K. Holcombe and W.A. Cote .....	11—	44
Ventilation, Filtration and Exhaust Techniques Applied to Printing Plant Operations, T.P. Marsailles .....	12—	??
Pollution-Controlled Gas Incineration: A Solution to the Growing Problem of Solid Waste Disposal, P.G. LaRue .....	2—	58
Pond, R.W., Environmental Systems for a Precision Metrology Laboratory .....	1—	71
Powell, R.M., Public Refrigerated Warehouses .....	8—	61
Priester, G. B., The Society's Financial Position: Is a Dues Increase Necessary? .....	10—	59
Product Trends in Modular Housing, O. Klima	5—	44
Professionalism at Work in ASHRAE, W.F. Spiegel .....	12—	61
Proposed Amendments to the Bylaws .....	4—	66
Proposed Standard Approved for 60-Day Membership Review and Comment .....	11—	68

#### PSYCHROMETRICS

Controlling Thermal Comfort in the EVA Space Suit, A.B. Chambers .....	3—	33
Free Convection Heat Transfer from Vertical Rectangular Fin Arrays, J.B. Chaddock .....	8—	53
History of the Changing Concepts in Ventilation Requirements, A.K. Klauss, R.H. Tull, L.M. Roots and J.R. Pfafflin	6—	51
Teacher Attitudes and Opinions on Air Conditioning in Schools, R.A. Fabrizio and R.D. Pepler .....	9—	58
Total Comfort Systems for Factories, R.R. Miller .....	4—	43
Total Comfort Systems for Hospitals and Nursing Homes, J. Rudberg .....	4—	39
Total Comfort Systems for Schools and Colleges, J.B. Thomas .....	4—	41
Public Refrigerated Warehouses, R.M. Powell	8—	61

### Q

Quest for Knowledge ... An Engineering Student's Personal Viewpoint, The, B.A. Nagengast .....	5—	80
Questions and Answers: Sizing of Service Water Heating Equipment .....	7—	55

### R

Ramachandran, A., see M. Srichand		
Reed, F.J., ASHRAE/ARI Cooperation Includes Writing of Standards .....	9—	42
Reed, R.M., see W.N. Findley		

#### REFRIGERANTS

Central Refrigeration Systems, W.I. Grant	11—	56
Comparative Analysis of Packaged and Central Station Refrigeration, L.R. St. Onge .....	10—	47
Heat Transfer to Boiling Fluorocarbon Refrigerants, B. Slipcevic .....	6—	65
Input-Output Structure of the Air-Conditioning Industry, The, L.S. Gunlogson .....	10—	51
Owner Experiences—Roof-Top and Central System Installations, G.E. Meyer .....	12—	54
Research Project Initiated on Two-Phase		

No.	Page	No.	Page
Refrigerant Flow, O.J. Nussbaum ..	5— 79	Committees Reorganized, J.E. Hoff-	1— 80
Studies of the Viscosity of Mixtures of		man .....	
R12 and R22 Vapors, M. Srichand,		Concern for 'Public Welfare' Emphasized	
M.A. Tirunaryangan and A. Ramach-	1— 61	in ASHRAE's 36 Research Projects	10— 63
andran .....		for 1970-71, R.S. Buchanan .....	
<b>REFRIGERATION</b>		Questions and Answers: Sizing of Serv-	7— 55
Army Tests Its ECU's (Environmental		ice Water Heating Equipment .....	
Control Units), J.L. Wilson .....	6— 62	Research on Energy Use, P.R. Achenbach	10— 60
Birmingham Chapter Holds Seminar on		Research Project Initiated on Two-Phase	
Current Trends in Refrigeration ....	6— 76	Refrigerant Flow, O.J. Nussbaum ..	5— 79
Central Refrigeration Systems, W.I. Grant	11— 56	Room Air Distribution with a Variable Vol-	
Chemistry and Contaminants Technical		ume System, H.E. Straub .....	4— 52
Committees Reorganized, J.E. Hoff-	1— 80	Why Study Energy Consumption? H.T.	
man .....		Gilkey .....	2— 88
Comparative Analysis of Packaged and		Research on Energy Use, P.R. Achenbach ...	10— 60
Central Station Refrigeration, L.R. St.		Research Project Initiated on Two-Phase Re-	
Onge .....	10— 47	frigerant Flow, O.J. Nussbaum .....	5— 79
Cooling Tower Application, F.H. Kohloss .	8— 49	Re-Use of Interior Air, The, P. Kalika, J.K. Hol-	11— 44
Design Engineers: Locate Equipment for		combe and W.A. Cote .....	
Maintenance and Service, H.A. Ferran	7— 62	<b>Robart, C.P., Jr.</b> , see P.C. Greiner	
District Chilled Water: An Idea Whose		Role of Refrigeration in our World Food Sup-	8— 32
Time Has Come, W.J. Bailey .....	2— 45	ply, The, M. Jul .....	
Environmental Engineering at the NASA		Room Air Distribution with a Variable Volume	4— 52
Manned Spacecraft Center, D. Hous-	3— 27	System, H.E. Straub .....	
ton .....		<b>Roots, L.M.</b> , see A.K. Klaus	
Free Convection Heat Transfer from Ver-		<b>Rudberg, J.A.</b> , Total Comfort Systems for Hos-	4— 39
tical Rectangular Fin Arrays, J.B.	8— 53	pitals and Nursing Homes .....	
Chaddock .....			
Future of Multi-Room Air Conditioning,	3— 56		
The, H.L. Laube .....			
Heat Transfer to Boiling Fluorocarbon	6— 65		
Refrigerants, B. Slipcevic .....			
Industry Standard Revised for Centrifugal	5— 67		
Water Chilling Packages, W.H. Dillen-			
beck .....			
Input-Output Structure of the Air Condi-	10— 51		
tioning Industry, The, L.S. Gunlogson			
New Thoughts on an Old Subject—Cold	7— 42		
Storage Insulation, R.M. Seward ...			
Owner Experiences—Roof-Top and Cen-	12— 54		
tral System Installations, G.E. Meyer			
Public Refrigerated Warehouses, R.	8— 61		
Powell .....			
Relation of Humidity to Economic Loss			
during Storage of Fishery Products,	2— 73		
J.A. Peters .....			
Studies of the Viscosity of Mixtures of			
R12 and R22 Vapors, M. Srichand,	1— 61		
M.A. Tirunaryangan and A. Ramach-			
andran .....			
Total Energy Concepts for Refrigeration			
and Air-Conditioning Engineers, W.S.			
Fleming			
Part I .....	11— 49		
Part II .....	12— 32		
28 to 32 F Ideal Temperatures for Preser-			
vation, Storage and Transportation	3— 61		
of Poultry, W.J. Stadelman .....			
What's Behind the U and L?, W.H. Farrell .	7— 46		
Relation of Humidity to Economic Loss during			
Storage of Fishery Products, J.A. Peters .	2— 73		
R&T Chairman Reports on Stewardship, 1969-			
70, R.F. Logsdon .....	6— 74		
Report by the Executive Director, A.T. Boggs			
III .....	9— 71		
<b>RESEARCH</b>			
Canadians Give and Take in ASHRAE Re-			
search Program, W.G. Colborne ...	3— 65		
Chemistry and Contaminants Technical			

## S

<b>St. Onge, L.R.</b> , Comparative Analysis of Pack-	10— 47
aged and Central Station Refrigeration ..	
<b>Sando, F.A.</b> , A Consulting Engineer Evaluates	6— 56
the Small Computer .....	
<b>Schreiner, J.R.</b> , ASHRAE's Research & Techni-	8— 67
cal Committee: Its Structure and Objec-	
tive .....	
75th Anniversary Celebration Has Proufound	1— 79
Impact on Society, F.H. Bridgers .....	
<b>Seward, R.M.</b> , New Thoughts on an Old Sub-	7— 42
ject—Cold Storage Insulation .....	
Slide Rule with a Memory, E.M. Hilliard .....	1— 57
<b>Slipcevic, B.</b> , Heat Transfer to Boiling Fluoro-	6— 65
carbon Refrigerants .....	

## SOCIETY COMMUNICATIONS

ASHRAE Financial Statements 1969-1970 .	12— 66
ASHRAE 1970 Annual Meeting Set for	
June 28-July 1 in Kansas City .....	5— 78
ASHRAE Officers, Directors, Committee-	
men, Staff	
1969-70 .....	2— 98
	4— 68
1970-71 .....	10— 76
ASHRAE Publishes History Bulletin .....	9— 69
ASHRAE's Research & Technical Com-	
mittee: Its Structure and Objectives,	
J.R. Schreiner .....	8— 67
ASHRAE Technical Committees & Task	
Groups .....	11— 69
Assessment of Standards Activity—1969,	
N.A. La Courte .....	1— 81
Birmingham Chapter Holds Seminar on	
Current Trends in Refrigeration ....	6— 76
Canadians Give and Take in ASHRAE Re-	
search Program, W.G. Colborne ...	3— 65
Chemistry and Contaminants Technical	
Committees Reorganized, J.E. Hoff-	1— 80
man .....	
Concern for 'Public Welfare' Emphasized	
in ASHRAE's 36 Research Projects	10— 63
for 1970-71, R.S. Buchanan .....	

	No.	Page
Contributors to the ASHRAE Research Program .....	10—	74
Education & Manpower in Canada, W.G. Woodcock .....	6—	75
Engineering Education for Students ... Begin Early, C.S. Perkins .....	4—	70
Engineering Ethics and Consumerism, L.A. Staebler .....	9—	70
Executive Committee 'Think-Tanks' Gear for the Future, S.F. Gilman .....	11—	65
Executive Director's Report, A.T. Boggs .....	4—	61
	5—	81
Goals of the ASHRAE Research Program, 1970-71, J.B. Craddock .....	7—	71
Grass Roots Education, J.B. Olivieri ..	3—	64
Historic Philadelphia Will Host ASHRAE 1971 Semiannual Meeting, January 24-28 .....	10—	62
It's Your Program! P.E. McNall, Jr. ....	9—	67
Looking Toward Environmental Quality, P.R. Achenbach .....	4—	71
'Mr. X Gave an Interesting Talk' .....	9—	77
New and Revised ASHRAE Standards, N.A. La Courte .....	7—	70
1970 Systems Volume of ASHRAE GUIDE AND DATA BOOK Available in May ..	4—	72
Nominations for ASHRAE Officers, Members of the Board of Directors .....	4—	62
Participate in National Meeting Programs, T.J. White .....	2—	90
Professionalism at Work in ASHRAE, W.F. Spiegel .....	12—	61
Proposed Amendments to the Bylaws ...	4—	66
Proposed Standard Approved for 60-Day Membership Review and Comment ..	11—	68
Quest for Knowledge ... An Engineering Student's Personal Viewpoint, The, B.A. Nagengast .....	5—	80
R&T Chairman Reports on Stewardship, 1969-70, R.F. Logsdon .....	6—	74
Report by the Executive Director, A.T. Boggs III .....	9—	71
Research on Energy Use, P.R. Achenbach .....	10—	60
Research Project Initiated on Two-Phase Refrigerant Flow, O.J. Nussbaum ..	5—	79
75th Anniversary Celebration Has Profound Impact on Society, F.H. Bridgers .....	1—	79
Society of Environmental Engineers, W.L. Holladay .....	3—	63
Society's Financial Position: Is A Dues Increase Necessary?, The, G.B. Priester .....	10—	59
Status of ASHRAE Standards, N.A. La Courte .....	12—	63
Technical Program Set for ASHRAE 1971 Semiannual Meeting in Philadelphia 'To Strive for Excellence', F.H. Bridgers ..	11—	66
Trends for the '70's to Highlight ASHRAE Meeting and Exposition .....	7—	69
United States to Host XIII International Congress of Refrigeration, 1971 in Washington, D.C. ....	12—	64
What is the Future for ASHRAE Publications? J.E. Dube .....	9—	72
Why Study Energy Consumption? H.T. Gilkey .....	4—	60
Year of Discovery, A, W.G. Hole .....	2—	88
Society of Environmental Engineers, W.L. Holladay .....	6—	73
Society's Financial Position: Is A Dues Increase Necessary?, The, G.B. Priester ..	3—	63
	10—	59

	No.	Page
<b>SPACE SCIENCE</b>		
Controlling Thermal Comfort in the EVA Space Suit, A.B. Chambers .....	3—	33
Environmental Engineering at the NASA Manned Spacecraft Center, D. Houston .....	3—	27
Spiegel, W.F., Professionalism at Work in ASHRAE .....	12—	61
Srichand, M., M.A. Tirunarayanan and A. Ramachandran, Studies of the Viscosity of Mixtures of R12 and R22 Vapors .....	1—	61
Stadelman, W.J., 28 to 32 F Temperatures Ideal for Preservation, Storage and Transportation of Poultry .....	3—	61
Staebler, L.A., Engineering Ethics and Consumerism .....	9—	70
<b>STANDARDS</b>		
ASHRAE/ANSI Cooperation in the Public Interest, D. Hogan .....	9—	39
ASHRAE/ARI Cooperation Includes Writing of Standards, F.J. Reed .....	9—	42
Assessment of Standards Activity—1969, N.A. La Courte .....	1—	81
Cause and Effect: ASHRAE Air Cleaner Standard 52-68 Benefits Both Industry and the Consumer, R.F. Logsdon ..	9—	44
Industry Standard Revised for Centrifugal Water Chilling Packages, W.H. Dillenbeck .....	5—	67
Making of a Standard, The, N.A. La Courte .....	9—	38
Proposed Standard Approved for 60-Day Membership Review and Comment ..	11—	68
Standards for the Seventies—Inward or Outward Bound, D.E. Kramer .....	9—	37
Status of ASHRAE Standards, N.A. La Courte .....	12—	63
Straub, H.E., Room Air Distribution with a Variable Volume System .....	4—	52
Studies of the Viscosity of Mixtures of R12 and R22 Vapors, M. Srichand, M.A. Tirunarayanan and A. Ramachandran .....	1—	61
Sullivan, R.W., Valve Industry—Its History and Its Future, The .....	7—	37
<b>SYMPOSIUMS</b>		
Air Conditioning for Integrated Systems —1970 Annual Meeting, Kansas City, Mo. Systems Building—Past, Present and Future, C. Arnold .....	10—	35
Comparative Analysis of Packaged and Central System Refrigeration—1970 Semiannual Meeting, San Francisco, Cal. Central Refrigeration Systems, W.I. Grant .....	11—	56
Comparative Analysis of Packaged and Central Station Refrigeration, L.R. St. Onge .....	10—	47
Owner Experiences—Roof-Top and Central System Installations, G.E. Meyer .....	12—	54
Domestic Refrigerator and Room Air Conditioner—1970 Semiannual Meeting, San Francisco, Calif. What's Behind the U & L? W.H. Farrell ..	7—	46
Environmental Control of Printing Plants —1970 Semiannual Meeting, San Francisco, Calif. Ventilation, Filtration and Exhaust Techniques Applied to Printing Plant Operation, T.P. Marsailles ..	12—	27

	No.	Page		No.	Page
Fire Hazards in Buildings—1970 Semiannual Meeting, San Francisco, Calif.			Urban, R.A., Design Considerations and Operating Characteristics of Variable Volume Systems	2—	77
Air Handling Systems for Control of Smoke Movement, G.T. Tamura, J.H. McGuire and A.G. Wilson	11—	37			
Humidity and Weight Loss in Cold Storage—1968 Semiannual Meeting, Columbus, Ohio			<b>V</b>		
Relation of Humidity to Economic Loss during Storage of Fishery Products, J.A. Peters	2—	73	Valve Industry—Its History and Its Future, The, R.W. Sullivan	7—	37
Humidity and Weight Loss in Cold Stored Pecans, E.K. Heaton and J.G. Woodroff	4—	49	<b>VENTILATION</b>		
Variable Air Volume Systems—1969 Annual Meeting, Denver, Colo.			Air Handling Systems for Control of Smoke Movement, G.T. Tamura, J.H. McGuire and A.G. Wilson	11—	37
Design Considerations and Operating Characteristics of Variable Volume Systems, R.A. Urban	2—	77	Air Management in an Enclosed City, R.E. Larson	9—	51
Room Air Distribution with a Variable Volume System, H.E. Straub	4—	52	Building Systems—Past, Present and Future, C. Arnold	10—	35
<b>SYSTEMS DESIGN</b>			Cause and Effect: ASHRAE Air Cleaner Standard 52-68 Benefits Both Industry and the Consumer, R.F. Logsdon	9—	44
Building Systems—Past, Present and Future, C. Arnold	10—	35	Design Considerations and Operating Characteristics of Variable Volume Systems, R.A. Urban	2—	77
Total Comfort Systems for Schools and Colleges, J.B. Thomas	4—	41	Environmental Engineering at the NASA Manned Spacecraft Center, D. Houston	3—	27
<b>T</b>			History of the Changing Concepts in Ventilation Requirements, A.K. Klauss, R.H. Tull, L.M. Roots and J.R. Pfafflin	6—	51
Tamura, G.T., J.H. McGuire and A.G. Wilson, Air Handling Systems for Control of Smoke Movement	11—	37	Human Habitat—1994, The, W.L. McGrath	3—	50
Teacher Attitudes and Opinions on Air Conditioning in Schools, R.A. Fabrizio and R.D. Pepler	9—	58	Industrialized Farming Opens a New Realm for the Environmental Engineer, H.E. Oyster	5—	53
Technical Program Set for ASHRAE 1971 Semiannual Meeting in Philadelphia	11—	66	Re-Use of Interior Air, P. Kalika, The, J.K. Holcombe and W.A. Cote	11—	44
Thomas, J.B.C., Electric Snow Melting: The Effects of Insulation & Off-Peak Storage	10—	42	Room Air Distribution with a Variable Volume System, H.E. Straub	4—	52
Thomas, J.B., Total Comfort Systems for Schools and Colleges	4—	41	Ventilation, Filtration and Exhaust Techniques Applied to Printing Plant Operations, T.P. Marsailles	12—	27
Tirunarayanan, M.A., see M. Srichand			<b>W X Y Z</b>		
To Strive for Excellence, F.H. Bridgers	7—	69	Wallace, L., Electric Incinerators—Newcomer to the Total Electric Family	5—	48
Total Comfort Systems for Factories, R.R. Miller	4—	43	<b>WAREHOUSE see FOOD PRESERVATION</b>		
Total Comfort Systems for Hospitals and Nursing Homes, J.A. Rudberg	4—	39	<b>WASTE DISPOSAL</b>		
Total Comfort Systems for Schools and Colleges, J.B. Thomas	4—	41	Electric Incinerators—Newcomer to the Total Electric Family, L. Wallace	5—	48
<b>TOTAL ENERGY</b>			Industrialized Farming Opens a New Realm for the Environmental Engineer, H.E. Oyster	5—	53
Economy Begins to Favor Heat Recovery, D. Watts	2—	54	Pollution-Controlled Gas Incineration: A Solution to the Growing Problem of Solid Waste Disposal, P.G. LaRue	2—	58
Energy Systems Review, H.H. Phipps	7—	49	Watts, D., Economy Begins to Favor Heat Recovery	2—	54
Gas Engines—On-Site Prime Movers, The, M. Barrangon	2—	50	What is the Future for ASHRAE Publications?, J.E. Dube	4—	60
Total Energy Concepts for Refrigeration and Air-Conditioning Engineers, W.S. Fleming	11—	49	What's Behind the U and L?, W.H. Farrell	7—	46
Part I	12—	32	White, T.J., Participate in National Meeting Programs	2—	90
Part II			Wilson, A.G., see G.T. Tamura		
28 to 32 F Temperatures Ideal for Preservation, Storage and Transportation of Poultry, W.J. Stadelman	3—	61	Wilson, J.L., Army Tests Its ECU's (Environmental Control Units)	6—	62
Tull, R. H., see A.K. Klauss			Woodcock, W.G., Education & Manpower in Canada	6—	75
<b>U</b>			Woodroff, J.G., see E.K. Heaton		
United States to Host XIII International Congress of Refrigeration, 1971 in Washington, D.C.	9—	72	Why Study Energy Consumption? H.T. Gilkey	2—	88
			Year of Discovery, A., W.G. Hole	8—	38

# advertisers' index

Below is a list of those companies whose advertisements appear in ASHRAE JOURNAL. Those shown with an asterisk have appeared in previous 1970 issues.

For further information concerning manufacturers products, please consult the 1970 edition of ASHRAE GUIDE AND DATA BOOK. Those company listings which represent manufacturers advertising in the 1970 edition indicated with a †.

A C & R Components ..... †*81	Essex International, Inc.	New York Blower Co. .... †*
A.C. Mfg. Co. .... *	Gas Controls Div. .... *85	Niagara Blower Co. .... †*84
Aerco Corp. .... *	Fairbanks Co. .... †*	Nibco, Inc. .... *
Aerofin Corp. .... †*	Farr Co. .... †*	North American Rockwell,
Aeroquip Corp., Barco Div. .... †*	Floating Floors, Inc.,	Filter Prod. Div. .... †*
Aireactor Corp. .... *	Sub. of National Lead Co. .... *	Novatron, Inc. .... *
Air Filter Corp. .... †*	Floorlevel Comfort Sys. .... *	
Air Moving and Condg. Assoc. .... *	Florida Gas Transmission .... *	Oy Nokia AB Finnish
Air Preheater Co. Inc. .... †*	Foster, Benjamin Div.,	Cable Wks .... 89
Airstream Prod. Co. .... †*	Amchem Prod. Inc. .... *	
Aladdin Heating Corp. .... †*		
Alco Controls Div.,	Gaylord Industries .... *	Packless Metal Hose, Inc. .... *
Emerson Electric Co. .... *4th Cover	Gould-National, Inc. .... *	Parke-Davis .... *
Allied Piping Prod. Co. .... *14	Governair Corp. .... *	Parson-Jurden Corp. .... *
Alnor Instrument Co. .... †*		Penn Controls, Inc. .... †*26
American Gas Assoc. .... *4-5,40-47,103	Hamilton Humidity, Inc. .... *	Penn Ventilator Co. .... †*86
American Standard,	Harris, J.W. Co. .... *	Phelps Dodge .... †*
Commercial Air-Condg. Dept. .... *	Heat Recovery Corp. .... *10	Phillips, H.A. & Co. .... †*
American Standard,	Henry Valve Co. .... †*	
Wilmington Coil Dept. .... *	Hitachi America, Ltd. .... 9	Radiant Elec. Heat Co. .... *
Arkla Air Conditioning Co. .... †*20	Howe Corp. .... *	Raycon Div.,
Armco Steel Corp. .... *23	Hubbell Corp. .... †*	Shadyside Foundry .... *
Armstrong Cork Co. .... †*2nd Cover,1	Hupp, Inc. .... †*4-5	Reading Industries, Inc. .... *
Armstrong Machine Works .... †*	Hydrotherm, Inc. .... †*15	Refrigerating Specialties Co. .... †*92
Associated Air Balance Council .... *		Rempe Co. .... *
Australian Refrigeration, Air	International Exposition Co. .... *90-91	Research Products Corp. .... †*6
Condg. & Heating .... *88	ITT Bell & Gossett .... †*	Revcor, Inc. .... †*13
	ITT Reznor, Inc. .... *103	Ric-Wil, Inc. .... *
Baltimore Aircoil Co. Inc. .... †*		Rocke International .... *
Barry Blower Co. .... †*3rd Cover	Jamison Door Co. .... †*	Rome Turney Radiator Co. .... †*
Bell & Gossett ITT .... †*	Jenkins Bros. .... *	Ruppright's Rotary Roof Cooler .... *
Bendix-Westinghouse .... *	Jenn-Air, Inc. .... *	
Bethlehem Steel Corp. .... *	Johns-Manville Corp. .... *	Sarco Co. .... †*
Blazer Corp. .... *7	Johnson Service Corp. .... †*82-83	Searle, G.D. & Co. .... *
Boston Gas Utilities .... *	Joy Mfg. Co. .... †*	Sellers Engineering Co. .... †*
Bundy Tubing Div.,		Shank, Cyrus Co. .... *
Bundy Corp. .... †*	Kaye, Joseph & Co. .... *	Shinwa Kogyo Co. Ltd. .... *8
	Kramer-Trenton Co. .... †*11	Silent Duct, Inc. .... *
Cam Industries, Inc. .... *		Smith, H.B. Co. .... †*
Cambridge Filter Corp. .... *	Larkin Coils, Inc. .... †*17	Space-Ray Gas-Fired Prod. Inc. .... *
Carnes Corp. .... *	Lau Blower Co. .... †*58-59	Sporlan Valve Co. .... *18-19
Carrier Air Condg. Co. .... †*87	Libbey-Owens-Ford Co. .... †*	Spring Steel Fasteners, Inc. .... *
Central Indiana Gas Companies .... *	Loyola Indus. Inc. .... *	Standard Refrigeration Co. .... *
Century Electric Co. .... †*2		Sta-Rite Indus. .... *16
Chilton Book Co. .... *	Machinery & Equipmt. Sales .... *	
Chrysler Corp., Airtemp Div. .... †*	Mammoth Div.,	Temprite Prod. Co. .... *
Continental Air Filters Div.,	Lear Siegler Inc. .... †*	Tennessee Plastics, Inc. .... *
Wehr Corp. .... †*	Marathon Electric Mfg. Corp. .... *	Tjernlund Mfg. Co. .... †*
Controls Company of America	Marson Fastener Corp. .... *	Tower Industries .... *
(A-P Controls Div.) .... †*	Maxon Premix Burner Co. .... *	Turbotec, Inc. .... *
Copeland Refrigeration Corp. .... †*	Mayekawa Mfg. Co. Ltd. .... †*60	
	McDonnell &	UOP Wolverine Tube Div. .... *
Daikin Kogyo Co. Ltd. .... *	Miller, Inc. .... *24	United Sheet Metal Div.,
Dart Union Co. .... *	McGraw-Hill Book Co. .... *	Wallace Murray Corp. .... *
Dayco Corp. .... †*	McQuay, Inc. .... *	
Domestic Pump & Mfg. Corp. .... †*	Mears Controls, Inc. .... *	Walworth Co. .... *
Dover Corp., Norris Div. .... †*57	Mercoid Corp. .... *	Waukesha Motor Co. .... *
Dunham-Bush, Inc. .... †*	Metal Flo Corp. .... *	Weil Pump Co. .... *
Dwyer Instruments, Inc. .... †*	Metropolitan Refining Co. Inc. .... *12	Westinghouse Electric Corp. .... †*
	Mid-Continent Metal Prod. Co. .... *	Whirlpool Corp. .... *
East Ohio Gas Co. .... *	Modern Refrigeration .... *88	White-Rodgers Div.,
Electric Heating Assoc. .... *	Mueller Brass Co. .... †*	Emerson Elec. Co. .... *
Elmwood Sensors, Inc. .... *		[Circle No. 37 on Reader Service Card]→
Engineering Aids .... *		ASHRAE JOURNAL December 1970

